

The documentation and process conversion measures necessary to comply shall with this document shall be completed by 22 December 2016.

METRIC

MIL-PRF-19500/594C  
22 September 2016  
SUPERSEDING  
MIL-PRF-19500/594B  
3 December 2010

PERFORMANCE SPECIFICATION SHEET

SEMICONDUCTOR DEVICE, DIODE, SILICON, POWER RECTIFIER,  
ULTRA FAST RECOVERY, LOW LEAKAGE, TYPES 1N6664 THROUGH 1N6666, AND  
1N6664R THROUGH 1N6666R, JAN, JANTX, JANTXV, AND JANS

This specification is approved for use by all Departments  
and Agencies of the Department of Defense.

The requirements for acquiring the product described herein shall consist of  
this specification sheet and MIL-PRF-19500.

1. SCOPE

1.1 Scope. This specification covers the performance requirements for a silicon, fast recovery power rectifier diodes. Four levels of product assurance are provided for each device type as specified in MIL-PRF-19500.

\* 1.2 Package outlines. The device package outline for this specification sheet is a TO-257AA in accordance with [figure 1](#) for all encapsulated device types.

1.3 Maximum ratings (for each leg).

Types	$V_R$ and $V_{RWM}$	$I_O$ (1) $T_C = +100^\circ\text{C}$	$I_{FSM}$ $T_C = +100^\circ\text{C}$ $t_p = 8.3 \text{ ms}$	$t_{rr}$	$T_{STG}$ and $T_{OP}$
	<u>V dc</u>	<u>A dc</u>	<u>A dc</u>	<u>ns</u>	
1N6664, 1N6664R	100	10	50	35	+200°C to -65°C
1N6665, 1N6665R	150	10	50	35	
1N6666, 1N6666R	200	10	50	35	

- (1) Derate linearly, 100 mA/°C from +100°C to +200°C.  
Storage temperature:  $T_{STG} = -65^\circ\text{C}$  to +200°C.  
Operating temperature:  $T_J = -65^\circ\text{C}$  to +200°C.  
Barometric pressure reduced (altitude operation): 8 mm Hg.  
 $R_{\theta JC} = 2.5^\circ\text{C/W}$  maximum.

\* Comments, suggestions, or questions on this document should be addressed to DLA Land and Maritime, ATTN: VAC, P.O. Box 3990, Columbus, OH 43218-3990, or emailed to [Semiconductor@dla.mil](mailto:Semiconductor@dla.mil). Since contact information can change, you may want to verify the currency of this address information using the ASSIST Online database at <https://assist.dla.mil>.

AMSC N/A

FSC 5961



\* 1.5 Part or Identifying Number (PIN). The PIN is in accordance with MIL-PRF-19500, and as specified herein. See 6.5 for PIN construction example and 6.6 for a list of available PINs.

\* 1.5.1 JAN certification mark and quality level. The JAN certification mark and quality level designators for encapsulated devices that are applicable for this specification sheet from the lowest to the highest level are as follows: "JAN", "JANTX", "JANTXV", and "JANS".

\* 1.5.2 Device type. The designation system for the device types of semiconductors covered by this specification sheet are as follows.

\* 1.5.2.1 First number and first letter symbols. The semiconductors of this specification sheet use the first number and letter symbols "1N".

\* 1.5.2.2 Second number symbols. The second number symbols for the semiconductor devices covered by this specification sheet are as follows: "6664", "6665", and "6666".

\* 1.5.3 Suffix symbols. The suffix letter "R" is used on devices that have a reversed polarity (see figure 1). Devices with standard polarity use no suffix (see figure 1).

\* 1.5.4 Lead finish. The lead finishes applicable to this specification sheet are listed on QPDSIS-19500.

## 2. APPLICABLE DOCUMENTS

\* 2.1 General. The documents listed in this section are specified in sections 3 and 4 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements of documents cited in sections 3 and 4 of this specification, whether or not they are listed.

### 2.2 Government documents.

2.2.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the solicitation or contract.

#### DEPARTMENT OF DEFENSE SPECIFICATIONS

MIL-PRF-19500 - Semiconductor Devices, General Specification for.

#### DEPARTMENT OF DEFENSE STANDARDS

MIL-STD-750 - Test Methods for Semiconductor Devices.

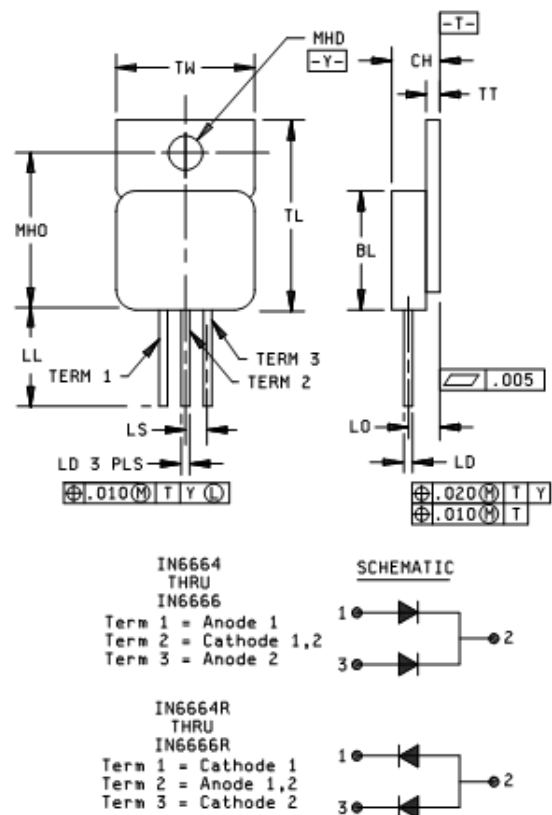
\* (Copies of these documents are available online at <http://quicksearch.dla.mil>.)

2.3 Order of precedence. Unless otherwise noted herein or in the contract, in the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

Ltr	Dimensions			
	Millimeters		Inches	
	Min	Max	Min	Max
BL	10.41	10.92	.410	.430
CH	4.83	5.08	.190	.200
LD	0.64	0.89	.025	.035
LL	12.82	15.11	.505	.595
LO	3.05 BSC		.120 BSC	
LS	2.54 BSC		.100 BSC	
MHD	3.56	3.81	.140	.150
MHO	13.39	13.64	.527	.537
TL	16.38	16.89	.6450	.665
TT	0.89	1.14	.035	.045
TW	10.41	10.67	.410	.420
Term 1	See schematic			
Term 2	See schematic			
Term 3	See schematic			

## NOTES:

1. Dimensions are in millimeters.
2. Inch equivalents are given for general information only.
3. Glass meniscus included in dimension TL and BL.
4. In accordance with ASME Y14.5M, diameters are equivalent to  $\phi$ x symbology.

FIGURE 1. Dimensions and configuration (TO-257AA).

### 3. REQUIREMENTS

3.1 General. The individual item requirements shall be as specified in MIL-PRF-19500 and as modified herein.

3.2 Qualification. Devices furnished under this specification shall be products that are manufactured by a manufacturer authorized by the qualifying activity for listing on the applicable qualified manufacturers list before contract award (see 4.2 and 6.3).

3.3 Abbreviations, symbols, and definitions. Abbreviations, symbols, and definitions used herein shall be as specified in MIL-PRF-19500.

3.4 Interface and physical dimensions. Interface and physical dimensions shall be as specified in MIL-PRF-19500 and on figure 1 herein. Methods used for electrical isolation of the terminal feedthroughs shall employ materials that contain a minimum of 90 percent  $Al_2O_3$  (ceramic).

3.4.1 Lead finish. Lead finish shall be solderable in accordance in MIL-PRF-19500, MIL-STD-750, and herein. Where a choice of lead finish is desired, it shall be specified in the acquisition document (see 6.2).

3.5 Marking. Marking shall be in accordance with MIL-PRF-19500.

3.6 Electrical performance characteristics. Unless otherwise specified herein, the electrical performance characteristics are as specified in 1.3 and table I herein.

3.7 Electrical test requirements. The electrical test requirements shall be as specified in table I herein.

3.8 Workmanship. Semiconductor devices shall be processed in such a manner as to be uniform in quality and shall be free from other defects that will affect life, serviceability, or appearance.

### 4. VERIFICATION

4.1 Classification of inspections. The inspection requirements specified herein are classified as follows:

- a. Qualification inspection (see 4.2).
- b. Screening (see 4.3)
- c. Conformance inspection (see 4.4).

4.2 Qualification inspection. Qualification inspection shall be in accordance with MIL-PRF-19500.

4.2.1 Construction verification. Cross sectional photos from three devices shall be submitted in the qualification report.

4.2.2 Group E qualification. Group E inspection shall be performed for qualification or re-qualification only. In case qualification was awarded to a prior revision of the specification sheet that did not request the performance of table II tests, the tests specified in table II herein that were not performed in the prior revision shall be performed on the first inspection lot of this revision to maintain qualification.

4.3 Screening (JANS, JANTX, and JANTXV levels only). Screening shall be in accordance with table E-IV of MIL-PRF-19500, and as specified herein. The following measurements shall be made in accordance with [table I](#) herein. Devices that exceed the limits of [table I](#) herein shall not be acceptable.

Screen	Measurement	
	JANS level	JANTX and JANTXV levels
(1) 3c	Thermal impedance (see <a href="#">4.3.2</a> )	Thermal impedance (see <a href="#">4.3.2</a> )
4	$Y_1$ at 10,000 G	Not applicable
9	Not applicable	Not applicable
11	Subgroup 2 of <a href="#">table I</a> herein; $V_{F2}$ and $I_{R1}$	Subgroup 2 of <a href="#">table I</a> herein; $V_{F2}$ and $I_{R1}$
12	See <a href="#">4.3.1</a> , method 1038 of MIL-STD-750, test condition A, $t = 96$ hours	See <a href="#">4.3.1</a> , method 1038 of MIL-STD-750, test condition A, $t = 48$ hours
13	Subgroups 2 and 3 of <a href="#">table I</a> herein; $\Delta V_{F2} = \pm .05$ V (pk); $\Delta I_{R1} = 150$ nA dc or 100 percent of the initial value, whichever is greater	Subgroup 2 of <a href="#">table I</a> herein; $\Delta V_{F2} = \pm .05$ V (pk); $\Delta I_{R1} = 150$ nA dc or 100 percent of the initial value, whichever is greater

- (1) Thermal impedance shall be performed any time after sealing provided. Temperature cycling is performed in accordance with MIL-PRF-19500, screen 3 prior to this thermal impedance.

4.3.1 Burn-in conditions. Burn-in conditions are as follows:  $T_A = +150^\circ\text{C}$ ;  $V_R = 0.8$  to  $0.85$  rated  $V_R$  dc (see [1.3](#)).

4.3.2 Thermal impedance  $Z_{\theta JX}$  measurements for screening. The thermal impedance measurements shall be performed in accordance with method 3101 of MIL-STD 750 as applicable, using the guidelines in that method for determining  $I_M$ ,  $I_H$ ,  $t_H$ , and K factor where appropriate). Measurement delay time ( $t_{MD}$ ) =  $70 \mu\text{s}$  max. The thermal impedance limit used in screen 3c and [table I](#), subgroup 2 shall be set statistically by the supplier.

4.3.3 Surge current. Surge current, see method 4066 of MIL-STD-750.  $I_{FSM} = 50$  A; 6 surges;  $t_p = 8.3$  ms or rectangular pulse of equivalent  $I_{RMS}$ ; 3 surges.  $I_O = 0$  A;  $V_{RMS} = 0$  V; duty factor 1 percent minimum  $T_A = +25^\circ\text{C}$ .

4.4 Conformance inspection. Conformance inspection shall be in accordance with MIL-PRF-19500 and as specified herein.

4.4.1 Group A inspection. Group A inspection shall be conducted in accordance with MIL-PRF-19500, and [table I](#) herein. The following test conditions shall be used for  $Z_{\theta JX}$ , group A inspection:  $Z_{\theta JX} \leq 2.5^\circ\text{C/W}$ .

- $I_H = 5$  A minimum.
- $t_H \geq 100$  ms.
- $I_M = 10$  mA to  $200$  mA.
- $t_{MD} = 200 \mu\text{s}$  maximum.

\* 4.4.2 Group B inspection. Group B inspection shall be conducted in accordance with the conditions specified for subgroup testing in table E-VIa (JANS) and table E-VIb (JANTX and JANTXV) of MIL-PRF-19500. Delta measurements shall be in accordance with the applicable steps of [table III](#) herein.

4.4.2.1 Group B inspection, table E-VIA (JANS) of MIL-PRF-19500.

	<u>Subgroup</u>	<u>Method</u>	<u>Conditions</u>
*	B3	4066	Condition A, $T_C = +100^\circ\text{C}$ ; $t_p \leq 8.3$ ms; $V_R = \text{rated } V_R$ (see <a href="#">1.3</a> ); six 8.3 ms surges; 1 surge/minute maximum. $I_F$ (surge) = 50 A dc; $I_O = 10$ A dc.
	B3	2037	Test condition D, all internal wires for each device shall be pulled separately.
	B4	1037	2,000 cycles, 25 percent rated $I_O \leq I_O$ applied $\leq$ rated $I_O$ (see <a href="#">4.5.2</a> ).
*	B5	1027	$I_F \geq 0.5$ A dc at $T_A = +25^\circ\text{C}$ , for 96 hours, or adjusted as required by the chosen $T_A$ to give an average lot at $T_J = +275^\circ\text{C}$ . For irradiated devices, include $t_{rr}$ as an end-point measurement.
	B6	3101	See <a href="#">4.4.1</a> except $t_H \geq 500$ ms.

4.4.2.2 Group B inspection, table E-VIB (JAN, JANTX and JANTXV of MIL-PRF-19500).

	<u>Subgroup</u>	<u>Method</u>	<u>Conditions</u>
*	B2	4066	Condition A, $T_C = +100^\circ\text{C}$ ; $t_p \leq 8.3$ ms; $V_R = \text{rated } V_R$ (see <a href="#">1.3</a> ); six 8.3 ms surges; 1 surge/minute maximum. $I_F$ (surge) = 50 A dc; $I_O = 10$ A dc.
*	B3	1037	$I_O$ (see <a href="#">4.5.2</a> ); 2,000 cycles.
	B4		Not applicable.
	B5	3101	See <a href="#">4.4.1</a> except $t_H \geq 500$ ms.

\* 4.4.3 Group C inspection. Group C inspection shall be conducted in accordance with the conditions specified for subgroup testing in table E-VII of MIL-PRF-19500. Delta measurements shall be in accordance with the applicable steps of [table III](#) herein.

4.4.3.1 Group C inspection, table E-VII of MIL-PRF-19500.

	<u>Subgroup</u>	<u>Method</u>	<u>Conditions</u>
	C2	2036	Test condition A, weight = 10 pounds (4.54 Kg), $t = 15$ seconds.
	C2	1021	Omit initial conditioning.
*	C6	1037	$I_O$ (see <a href="#">4.5.2</a> ); 6,000 cycles.

\* 4.4.4 Group E inspection. Group E inspection shall be conducted in accordance with the conditions specified for subgroup testing in table E-IX of MIL-PRF-19500. Delta measurements shall be in accordance with the applicable steps and footnotes of [table III](#) herein.

4.5 Methods of inspection. Methods of inspection shall be as specified in the appropriate tables and as follows.

4.5.1 Pulse measurements. Conditions for pulse measurement shall be as specified in section 4 of MIL-STD-750.

4.5.2 DC intermittent operation life. A cycle shall consist of an "on" period, when forward current is applied suddenly, not gradually, to the device for the time necessary to achieve an increase (delta) case temperature of +85°C +15°C, -5°C followed by an "off" period, when the current is suddenly removed for cooling the case through a similar delta temperature. Auxiliary (forced) cooling is permitted during the "off" period only. Either forward current or "on" time, within specific limits, and "off" time may be adjusted to achieve the delta case temperature. Heat sinks shall only be used if, and to the degree necessary, to maintain test samples with the desired delta temperature tolerance. The heating time shall be such that  $30 \text{ s} \leq t_{\text{heating}} \leq 180 \text{ s}$ . The forward current may be steady-state dc, full-wave rectified dc, or the equivalent half-sine wave dc of the specified value. The test duration shall be the specified number of cycles. Within the time interval of 50 cycles before, and 500 cycles after, the termination of the test, the sample units shall be removed from the specified test conditions and allowed to reach room ambient conditions. Specified end-point measurements for qualification and quality conformance inspections shall be completed within 96 hours after removal of sample units from the specified test conditions. Additional readings may be taken at the discretion of the manufacturer.

TABLE I. Group A inspection.

Inspection 1/ 2/	MIL-STD-750		Symbol	Limits		Unit
	Method	Conditions		Min	Max	
<u>Subgroup 1</u>						
Visual and mechanical examination	2071					
<u>Subgroup 2</u>						
Thermal impedance 2/	3101	See 4.4.1	$Z_{\theta JX}$		2.5	°C/W
* Forward voltage	4011	Condition B, $t_p \leq 400 \mu s$ , duty cycle $\leq 2$ percent pulse $I_F = 6 A$ $I_F = 12 A$	$V_{F1}$ $V_{F2}$		1.0 1.5	V dc V dc
Reverse current leakage	4016	DC method; $V_R = \text{rated } V_R$ (see 1.3)	$I_{R1}$		250	nA dc
Breakdown voltage	4021	$I_R = 1.0 \mu A$ dc	$V_{(BR)1}$			
1N6664, 1N6664R				100		V dc
1N6665, 1N6665R				150		V dc
1N6666, 1N6666R				200		V dc
<u>Subgroup 3</u>						
High temperature operation:		$T_A = +150^\circ C$				
Reverse current leakage	4016	DC method; $V_R = \text{rated } V_R$ (see 1.3)	$I_{R2}$		75	$\mu A$ dc
* Forward voltage	4011	Condition B, $I_{FM} = 6 A$ , duty cycle $\leq 2$ percent (pulsed); $t_p \leq 400 \mu s$	$V_{F3}$		0.95	V
Low temperature operation:		$T_A = -55^\circ C$				
* Forward voltage	4011	Condition B, $I_{FM} = 6 A$ , duty cycle $\leq 2$ percent (pulsed); $t_p \leq 400 \mu s$	$V_{F4}$		1.1	V
Breakdown voltage	4021	$I_R = 1.0 \mu A$ dc	$V_{(BR)2}$			
1N6664, 1N6664R				100		V dc
1N6665, 1N6665R				150		V dc
1N6666, 1N6666R				200		V dc

See footnote at end of table.



TABLE I. Group A inspection - Continued.

Inspection <u>1/</u>	MIL-STD-750		Symbol	Limits		Unit
	Method	Conditions		Min	Max	
<u>Subgroup 4</u>						
Reverse recovery time	4031	$I_F = 0.5 \text{ A}$ ; $I_R = 1 \text{ A}$ ; $I_{(REC)} = 0.25 \text{ A}$ ; $di/dt = 85 \text{ A}/\mu\text{s}$ minimum	$t_{rr}$		35	ns
Junction capacitance	4001	$V_R = 10 \text{ V}$ ; $f = 1 \text{ MHz}$ ; $V_{SIG} = 50 \text{ mV}$ (p-p) maximum	$C_J$		100	pF
<u>Subgroup 5</u>						
Not applicable						
<u>Subgroup 6</u>						
Surge current	4066	Condition A, $T_C = +100^\circ\text{C}$ ; $t_p \leq 8.3 \text{ ms}$ ; $V_R = \text{rated } V_R$ (see 1.3); six 8.3 ms surges; 1 surge/minute maximum. ; $I_O = 10 \text{ A dc}$ .		50		A

1/ For sampling plan, see MIL-PRF-19500.

\* 2/ This test required for the following end-point measurements only:  
 Group B, subgroups 3, 4 and 5 (JANS).  
 Group B, subgroups 2 and 3 (JAN, JANTX, JANTXV).  
 Group C, subgroups 2 and 6.  
 Group E, subgroup 1.

## MIL-PRF-19500/594C

TABLE II. Group E inspection (all quality levels) for qualification only.

Inspection	MIL-STD-750		Sampling plan
	Method	Conditions	
<u>Subgroup 1</u>			45 devices c = 0
Thermal shock (liquid to liquid)	1056	20 cycles, except high temperature shall be 100°C and low temperature shall be 0°C.	
Temperature cycling (air to air)	1051	500 cycles, condition C. -65°C to +200°C.	
Hermetic seal	1071		
Electrical measurement		See <a href="#">table I</a> , group A, subgroup 2 and <a href="#">table III</a> , steps 1 and 2.	
<u>Subgroup 2</u>			22 devices c = 0
Steady-state reverse bias	1038	Test condition A, t = 1,000 hours, T <sub>C</sub> = +150°C, V <sub>R</sub> = 0.8 of rated V <sub>RWM</sub> (see <a href="#">1.3</a> ).	
Electrical measurement		See <a href="#">table I</a> , group A, subgroup 2 and <a href="#">table III</a> , steps 1 and 2.	
<u>Subgroup 3</u>			
Not applicable			
<u>Subgroup 4</u>			Sample size N/A
Thermal impedance curves		See MIL-PRF-19500.	
* <u>Subgroup 8</u>			45 devices
* Peak reverse power	4065	Peak reverse power, (P <sub>RM</sub> )= shall be characterized by the supplier and this data shall be available to the Government. Test shall be performed on each subplot.	
* Electrical measurement		During the P <sub>RM</sub> test, the voltage (V <sub>BR</sub> ) shall be monitored to verify it has not collapsed. Any collapse in V <sub>BR</sub> during or after the P <sub>RM</sub> test or rise in leakage current (I <sub>R</sub> ) after the test that exceeds I <sub>R1</sub> in <a href="#">table I</a> shall be considered a failure to that level of applied P <sub>RM</sub> . Progressively higher levels of P <sub>RM</sub> shall be applied until failure occurs on all devices within the chosen sample size.	

TABLE III. Group B, C, and E delta requirements. 1/ 2/ 3/ 4/ 5/

Step	Inspection	MIL-STD-750		Symbol	Limit	Unit
		Method	Conditions			
1.	Forward voltage	4011	Condition B, Duty cycle $\leq 2$ percent (pulsed see 4.5.1); $t_p = 8.3$ ms (max) $I_F = 6$ A	$\Delta V_{F1}$	$\pm 50$ mV dc change from initial value	
	1N6664, R, 1N6665, R, 1N6666, R		$I_F = 12$ A	$\Delta V_{F2}$	$\pm 50$ mV dc change from initial value	
2.	Reverse current	4016	DC method  $V_R = 100$ V dc $V_R = 150$ V dc $V_R = 200$ V dc	$\Delta I_{R1}$	100 percent or $\pm 150$ nA dc change from initial reading, whichever is greater	
	1N6664, R, 1N6665, R, 1N6666, R					

- \* 1/ Devices which exceed the [table I](#) limits for this test shall not be accepted.
- 2/ The electrical measurements for group B inspections in table E-VIa (JANS) of MIL-PRF-19500 are as follows: Subgroups 4 and 5, see [table III](#) herein, steps 1 and 2.
- 3/ The electrical measurements for group B inspections in table E-VIb (JAN, JANTX, and JANTXV) of MIL-PRF-19500 are as follows: Subgroup 3, see [table III](#) herein, steps 1 and 2.
- 4/ The electrical measurements for group C inspections in table E-VII (all quality levels) of MIL-PRF-19500 are as follows: Subgroup 6, see [table III](#) herein, steps 1 and 2.
- 5/ The electrical measurements for group E inspections in table E-IX of MIL-PRF-19500 are as follows: Subgroups 1 and 2, see [table III](#) herein, steps 1 and 2.

## 5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When packaging of material is to be performed by DoD or in-house contractor personnel, these personnel need to contact the responsible packaging activity to ascertain packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activities within the Military Service or Defense Agency, or within the Military Service's system commands. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

## 6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory. The notes specified in MIL-PRF-19500 are applicable to this specification).

6.1 Intended use. Semiconductors conforming to this specification are intended for original equipment design applications and logistics support of existing equipment.

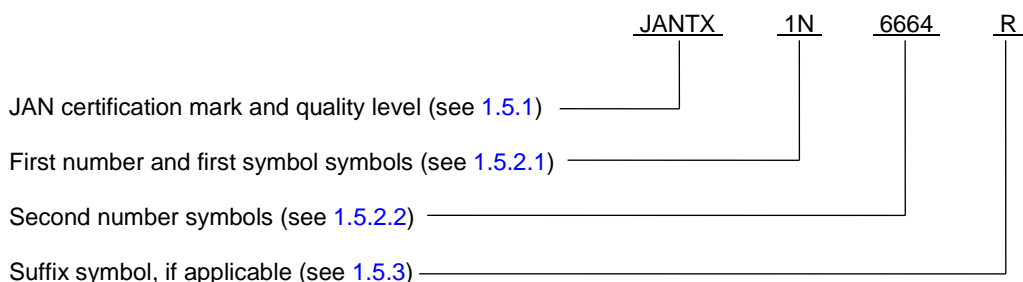
6.2 Acquisition requirements. Acquisition documents should specify the following:

- a. Title, number, and date of this specification.
- b. Packaging requirements (see 5.1).
- c. Lead finish (see 3.4.1).
- \* d. The complete PIN, see 1.5 and 6.5.

6.3 Qualification. With respect to products requiring qualification, awards will be made only for products which are, at the time of award of contract, qualified for inclusion in Qualified Manufacturers List (QML 19500) whether or not such products have actually been so listed by that date. The attention of the contractors is called to these requirements, and manufacturers are urged to arrange to have the products that they propose to offer to the Federal Government tested for qualification in order that they may be eligible to be awarded contracts or orders for the products covered by this specification. Information pertaining to qualification of products may be obtained from DLA Land and Maritime, ATTN: VQE, P.O. Box 3990, Columbus, OH 43218-3990 or e-mail [vqe.chief@dla.mil](mailto:vqe.chief@dla.mil). An online listing of products qualified to this specification may be found in the Qualified Products Database (QPD) at <https://assist.dla.mil>.

6.4 Interchangeability information. MIL-PRF-19500/594 is a TO-257 package version of MIL-PRF-19500/477, which is an axial leaded diode version.

\* 6.5 PIN construction example. The PINs for encapsulated devices are constructed using the following form.



\* 6.6 List of PINs for encapsulated devices. The following is a list of possible PINs available on this specification sheet for encapsulated devices.

PINs for devices of the base quality level	PINs for devices of the "TX" quality level	PINs for devices of the "TXV" quality level	PINs for devices of the "S" quality level
JAN1N6664	JANTX1N6664	JANTXV1N6664	JANS1N6664
JAN1N6665	JANTX1N6665	JANTXV1N6665	JANS1N6665
JAN1N6666	JANTX1N6666	JANTXV1N6666	JANS1N6666
JAN1N6664R	JANTX1N6664R	JANTXV1N6664R	JANS1N6664R
JAN1N6665R	JANTX1N6665R	JANTXV1N6665R	JANS1N6665R
JAN1N6666R	JANTX1N6666R	JANTXV1N6666R	JANS1N6666R

\* 6.7 Changes from previous issue. The margins of this specification are marked with asterisks to indicate where changes from the previous issue were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of marginal notations and relationship to the last previous issue.

Custodians:

Army - CR  
Navy - EC  
Air Force - 85  
NASA - NA  
DLA - CC

Preparing activity:

DLA - CC

(Project 5961-2016-096)

Review activities:

Army - AR, MI, SM  
Navy - AS,-MC  
Air Force - 19, 99

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at <https://assist.dla.mil>.